IN THE CLAIMS

Please amend the claims as follows:

Claims 1-94 (Canceled).

Claim 95 (Currently Amended): A data classification method of classifying a group of data which a data storage unit stores into a plurality of sets in accordance with data values, comprising:

estimating [[a]] N boundary candidates (wherein N is an integer of 2 or more) for dividing said group of data into a first number of sets on the basis of said data values; and

extracting M boundary candidates (wherein M is smaller than N) and is used to divide said group of data into a second number of sets smaller than said first number, under a predetermined extraction condition, on the basis of said N boundary candidates.

Claim 96 (Previously Presented): The method according to claim 95, wherein said predetermined extraction condition includes a condition that said M boundary candidates are extracted on the basis of a magnitude of a data value indicated by each of said N boundary candidates.

Claim 97 (Previously Presented): The method according to claim 96, wherein said predetermined extraction condition includes a condition that a boundary candidate with which said data value is maximized is extracted.

Claim 98 (Previously Presented): The method according to claim 95, wherein said group of data are arranged at positions in a predetermined direction, and

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said predetermined extraction condition includes a condition that said M boundary candidates are extracted on the basis of the respective positions of said N boundary candidates.

Claim 99 (Previously Presented): The method according to claim 95, wherein

said group of data are differential data obtained by differentiating image pick-up data of each of pixels obtained by picking up different image patterns in a predetermined image pick-up field in accordance with positions of said pixels,

said data value is a differential value of said image pick-up data, and

said boundary candidate is a position of said pixel.

Claim 100 (Previously Presented): The method according to claim 95, wherein N is two, and M is one.

Claim 101 (Previously Presented): The method according to claim 95, wherein said group of data are luminance data of each of pixels obtained by picking up different image patterns in a predetermined image pick-up field.

Claim 102 (Currently Amended): A data classification apparatus for classifying a group of data which a data storage unit stores into a plurality of sets in accordance with data values, comprising:

a first data dividing unit which estimates N boundary candidates (wherein N is an integer of 2 or more) for dividing said group of data into a first number of sets on the basis of said data values; and

a second data dividing unit which is electrically connected to the first data dividing

unit and extracts M boundary candidates (wherein M is smaller than N) and is used to divide

said group of data into a second number of sets smaller than said first number, under a

predetermined extraction condition, on the basis of said N boundary candidates.

Claim 103 (Previously Presented): The apparatus according to claim 102, wherein

said group of data are differential data obtained by differentiating image pick-up data

of each of pixels obtained by picking up different image patterns in a predetermined image

pick-up field in accordance with positions of said pixels,

said data value is a differential value of said image pick-up data, and

said boundary candidate is a position of said pixel.

Claim 104 (Previously Presented): The apparatus according to claim 102, wherein N

is two, and M is one.

Claim 105 (Withdrawn): An image processing method of processing image data

obtained by picking up an image in a predetermined image pick-up field, comprising:

setting luminance data, as a group of data, which is obtained by picking up an image

pattern of an object and an image pattern of a background which exist in the predetermined

image pick-up field; and

identifying a boundary between said object and said background by classifying said

luminance data by using the data classification method according to claim 95.

Claim 106 (Withdrawn): An image processing apparatus for processing image data

obtained by picking up an image in a predetermined image pick-up field, wherein

luminance data which is obtained by picking up an image pattern of an object and an image pattern of a background which exist in said predetermined image pick-up field is set as a group of data, and

a boundary between said object and said background is identified by classifying said luminance data by using the data classification apparatus according to claim 102.

Claim 107 (Withdrawn): An exposure method of transferring a predetermined pattern onto a substrate, comprising:

specifying an outer shape of said substrate by using the image processing method according to claim 105;

controlling a rotational position of said substrate on the basis of said specified outer shape of said substrate;

detecting a mark formed on said substrate after said rotational position is controlled; and

transferring said predetermined pattern onto said substrate while positioning said substrate on the basis of a mark detection result obtained in said mark detection.

Claim 108 (Withdrawn): An exposure apparatus for transferring a predetermined pattern onto a substrate, comprising:

an outer shape specifying unit including the image processing apparatus according to claim 106, which specifies an outer shape of said substrate;

a rotational position control unit which is electrically connected to the outer shape specifying unit and controls a rotational position of said substrate on the basis of said outer shape of said substrate which is specified by said image processing apparatus;

a mark detection unit which detects a mark formed on said substrate whose rotational position is controlled by said rotational position control unit; and

a positioning unit which is electrically connected to the mark detection unit and positions said substrate on the basis of a mark detection result obtained by said mark position detection unit,

wherein said predetermined pattern is transferred onto said substrate while said substrate is positioned by said positioning unit.

Claims 109-111 (Canceled).

Claim 112 (Withdrawn) (Currently Amended): A recording medium on which an image processing control program executed by an image processing apparatus for processing image data obtained by picking up an image in a predetermined image pick-up field is recorded, wherein

said image processing control program comprises:

allowing luminance data which is obtained by picking up an image pattern of an object and an image pattern of a background which exist in said predetermined image pick-up field to be set as a group of data;

a data classification control program which allows said luminance data <u>which a data storage unit stores</u> to be classified, comprising

~~allowing a first number~~ <u>allowing N</u> of boundary candidates <u>(where N is an integer of 2 or more)</u> for dividing said group of data into a ~~second~~ <u>first</u> number of sets to be estimated on the basis of said data values;

allowing ~~a third number of~~ <u>M</u> boundary candidates ~~which is smaller than said first number and is~~ <u>(wherein M is smaller than N)</u> used to divide said group of data into a ~~fourth~~

second number of sets smaller than said ~~second~~ first number, under a predetermined

extraction condition, to be extracted on the basis of said ~~first number of~~ N boundary

candidates; and

allowing a boundary between said object and said background to be identified.

Claims 113-114 (Canceled).

Claim 115 (Withdrawn): A device manufacturing method including a lithography

process, wherein

exposure is performed by using the exposure method according to claim 107 in said

lithography process.

Claim 116 (Canceled).